Study pushes back the origin of HIV-related retroviruses to 60 million years ago

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Lentiviruses cause a variety of chronic diseases in mammals —- ranging from the most notorious example of HIV/AIDS in humans to various neurological disorders in primates——yet little is known of their evolutionary history and origin.

As HIV/AIDS has emerged only recently and so far eluded efforts to outwit it, researchers have been looking at imprints left by related viruses in other animals to better understand their origins. Until recently, the oldest known lentiviral lineages —- in lemurs, rabbits and ferrets —- have been found to date back to 3-12 million years ago.

Now, a research group led by Daniel Elleder from the Czech Academy of Sciences has used genomic data from the exotic Malayan flying lemur (colugo) to uncover the oldest lentivirus ever identified, whose first emergence may date to as early as 60 million years ago. Three samples of colugo genomic DNA containing lentiviral remnants were sequenced and ancient viral genomes were reconstructed and analyzed. The findings were published in the advanced online edition of *Molecular Biology and Evolution*.

"We hope that our findings will allow virologists to better understand how lentiviruses evolved and how their hosts developed defenses against them," said Elleder.

In future studies, the team wants to follow the timeline even deeper into the past by surveying a broad spectrum of animals, hoping to identify

more pieces of the puzzle of lentivirus evolution.

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